Amendments to the Claims:

This listing of claims replaces all prior listings, and versions, of claims in the present application.

Listing of Claims:

1. (Canceled)

2. (Currently Amended) A position encoder according to claim 22, wherein said excitation electromagnetic field comprises a first component which is orthogonal to the surface of the film and a second component which is parallel to the surface of the film and wherein the excitation winding and the excitation circuit are arranged so that the magnitude of said second component is insufficient to drive the film into and out of saturation in the vicinity of said one or more sensor windings.

3. (Previously Presented) A position encoder according to claim 22, wherein said excitation winding is arranged relative to said film so that said excitation electromagnetic field is substantially perpendicular to the film along the measurement direction.

4. (Canceled)

5. (Previously Presented) A position encoder according to claim 22, wherein said magnetic field generated by said magnetic field generator creates an in-homogeneity spot in said film, the position of which varies with the relative position between the first and second relatively movable members and wherein said excitation and sensor windings are arranged so that the mutual electromagnetic coupling between them varies in dependence upon the position of said in-homogeneity spot in the film.

6. (Original) A position encoder according to claim 5, wherein said in- homogeneity spot comprises an unsaturated region of the magnetizable material surrounded by a saturated region of the magnetizable material.

7. (Previously Presented) A position encoder according to claim 5, wherein said in-homogeneity spot is created at a position in the film where the magnetic field generated by said magnetic field generator is substantially perpendicular to the film of magnetizable material.

8. (Currently Amended) A position encoder according to claim 22, comprising first and second sensor windings that are separated along said measurement path and which are arranged so that when said excitation winding is energised with said excitation signal, a respective sensor signal is generated in each sensor winding that varies with the relative position between said first and second members, and wherein said processing circuit is operable to process the sensor signals generated in said first and second sensor windings to determine the value of said a ratiometric function, which value is indicative of the relative position between the first and second relatively movable members.

9. (Currently Amended) A position encoder according to claim 22, comprising a plurality of excitation windings each operable to generate an excitation electromagnetic field when energized by said excitation circuit, wherein each excitation winding and the or each sensor winding are arranged relative to said film so that a mutual electromagnetic coupling between' them varies in dependence upon the positionally varying magnetization state of said film of magnetizable material, so that when each excitation winding is energized with an excitation signal, a respective sensor signal is generated in the or each sensor winding that varies with the relative position between said first and second members and wherein said processing circuit is operable to process the sensor signals generated in the or each sensor winding to determine the value of said a ratiometric function, which value is indicative of the relative position between the first and second relatively movable members.

10. (Previously Presented) A position encoder according to claim 22, wherein said at least one winding which is carried by said first member is arranged along said measurement path in a geometrically varying manner.

11. (Original) A position encoder according to claim 10, wherein said winding carried by said first member geometrically varies along the measurement path so that said sensor signal

generated in said sensor winding varies substantially sinusoidally with the relative position between said first and second relatively movable members.

12. (Withdrawn) A position encoder according to claim 22, wherein said magnetic field generator is operable to generate a magnetic field having a magnetic axis which lies at an angle to said film.

13. (Withdrawn) A position encoder according to claim 12, wherein said magnetic field generator is operable to generate a magnetic field having an axis which is substantially perpendicular to said film.

14. (Previously Presented) A position encoder according to claim 22, wherein said magnetic field generator is operable to generate a DC magnetic field.

15. (Currently Amended) A position encoder according to claim 22, wherein a ~~said~~ winding carried by said first member comprises at least two loops of conductor which extend along the measurement direction and which are connected in series in a figure of eight arrangement.

16. (Previously Presented) A position encoder according to claim 22, comprising a plurality of sensor windings and wherein each sensor winding is provided adjacent to a different portion of said film of magnetizable material and is sensitive to the magnetization state of the film adjacent the respective sensor winding.

17. (Previously Presented) A position encoder according to claim 22, wherein said film of magnetizable material has a high permeability and a low coercivity.

18. (Previously Presented) A position encoder according to claim 22, wherein said film of magnetizable material comprises at least one of: pure iron, nickel iron alloy, cobalt iron alloy, an amorphous alloy, nano crystalline alloy or a silicon iron.

19. (Previously Presented) A position encoder according to claim 22, wherein said measurement path is linear.

20. (Withdrawn) A position encoder according to claim 22, wherein said measurement path is circular.

21. (Withdrawn) A position encoder according to claim 22, wherein said excitation and sensor windings extend along different measurement paths and wherein said processing circuit is operable to process the signals generated in said sensor winding to determine a multi-dimensional relative position between said first and second relatively movable members.

22. (Currently Amended) A position encoder comprising:

first and second members which are relatively movable along a measurement path;

an excitation winding and one or more a sensor windings, at least one of the excitation winding and the one or more sensor windings being ~~which is~~ carried by the first member;

a DC magnetic field generator carried by the second member and operable to generate a DC magnetic field which varies with position along the measurement path;

a film of magnetizable material which is located, in use, within said positionally varying DC magnetic field to cause the film to have a positionally varying magnetization state along the measurement path;

wherein the excitation and sensor windings are arranged relative to said film so that a mutual electromagnetic coupling between them varies in dependence upon the positionally varying magnetization state of said film of magnetizable material, so that when said excitation winding is energized with an excitation signal, a sensor signal is generated in the one or more ~~said~~ sensor windings that varies with the relative position between said first and second members;

an excitation circuit operable to generate an excitation signal having an excitation frequency for energizing the excitation winding to cause the excitation winding to generate an excitation electromagnetic field; and

a processing circuit operable to process ~~the~~ sensor signals generated in the one or more sensor windings which are ~~is~~ at substantially the same frequency as said excitation frequency, to determine a value of a ratiometric function, which value is indicative of the relative position between the first and second relatively movable members.

23-25. (Canceled).

26. (Currently Amended) A method of determining relative position of first and second relatively movable members, the method comprising the steps of:

providing a position encoder according to claim 22;

causing said excitation circuit to generate said excitation signal at said excitation frequency for energizing the excitation winding; and

processing ~~the~~ sensor signals induced in the one or more ~~said~~ sensor windings which are ~~is~~ at substantially the same frequency as said excitation frequency and which vary ~~varies~~ in dependence upon the relative position of the first and second members, to determine a value of a ratiometric function, which value is indicative of the relative position between the first and second relatively movable members.

27. (Currently Amended) A position encoder according to claim 22, wherein said processing circuit is operable to combine said sensor signals with a signal having the same frequency as said excitation frequency.

28. (Currently Amended) A position encoder according to claim 27, wherein said processing circuit is operable to mix said sensor signals with a signal having the same frequency as said excitation frequency.

29. (Currently Amended) A position encoder according to claim 22, wherein said excitation winding and said one or more sensor windings are arranged so that, in the absence of said magnetic field generator, there is substantially no electromagnetic coupling between them.

30. (Currently Amended) A position encoder according to claim 29, wherein the excitation winding and the one or more sensor windings lie in substantially the same plane.

31. (Previously Presented) A sensor according to claim 22, comprising a printed circuit board carrying conductive tracks that define said excitation and sensor windings and on which said film of the magnetizable material is carried.